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Page 1 of 28

Report No.: HK2507033624-E

FCC Test Report

**Test report
On Behalf of
Xiamen HolyOcean Trading Co., Ltd.
For
RC quadcopter**

**Model No.: HS320, HS320 Mini, HS320 Plus, HS320 Pro,
HS320 Pro2, HS320C, HS320G, HS320D, HS320L, HS321, HS322,
HS323, HS324, HS325, HS326, HS327, HS328, HS329**

FCC ID: 2BCZR1865RY4

Prepared For : Xiamen HolyOcean Trading Co., Ltd.

**Unit 431-H, BLDG C, Xiamen Intl Shipping CTR, No.93 Xiangyu Rd, Xiamen,
361000 China**

Prepared By : Shenzhen HUAK Testing Technology Co., Ltd.

**1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping,
Fuhai Street, Bao'an District, Shenzhen, Guangdong, China**

Date of Test: Jul. 03, 2025~Jul. 21, 2025

Date of Report: Jul. 21, 2025

Report Number: HK2507033624-E

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Test Result Certification

Applicant's name : Xiamen HolyOcean Trading Co., Ltd.
Address : Unit 431-H, BLDG C, Xiamen Intl Shipping CTR, No.93 Xiangyu Rd, Xiamen, 361000 China
Manufacturer's Name : Xiamen HolyOcean Trading Co., Ltd.
Address : Unit 431-H, BLDG C, Xiamen Intl Shipping CTR, No.93 Xiangyu Rd, Xiamen, 361000 China

Product description

Trade Mark: N/A
Product name : RC quadcopter
Model and/or type reference : HS320, HS320 Mini, HS320 Plus, HS320 Pro, HS320 Pro2, HS320C, HS320G, HS320D, HS320L, HS321, HS322, HS323, HS324, HS325, HS326, HS327, HS328, HS329
Standards : FCC Rules and Regulations Part 15 Subpart C Section 15.249
ANSI C63.10: 2020

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Date of Test.....:

Date (s) of performance of tests : Jul. 03, 2025~Jul. 21, 2025

Date of Issue..... : Jul. 21, 2025

Test Result : **Pass**

Testing Engineer

Len Liao

Technical Manager

Sliver Wan

Authorized Signatory

Jason Zhou

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**** Modified History ****

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Jul. 21, 2025	Jason Zhou



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1. Test Summary

1.1. Test Procedures and Results

DESCRIPTION OF TEST	SECTION NUMBER	RESULT
AC POWER LINE CONDUCTED EMISSION	15.207	N/A
RADIATED EMISSION TEST	15.249(a)/15.209	COMPLIANT
BAND EDGE	15.249(d)/15.205	COMPLIANT
OCCUPIED BANDWIDTH MEASUREMENT	15.215 (c)	COMPLIANT
ANTENNA REQUIREMENT	15.203	COMPLIANT

1.2. Information of the Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.

Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Testing Laboratory Authorization:

A2LA Accreditation Code is 4781.01.

FCC Designation Number is CN1229.

Canada IC CAB identifier is CN0045.

CNAS Registration Number is L9589.

1.3. Measurement Uncertainty

Measurement Uncertainty

Conducted Emission Expanded Uncertainty

$$= 2.71 \text{dB, k=2}$$

Radiated emission expanded uncertainty(9kHz-30MHz)

$$= 3.90 \text{dB, } k=2$$

Radiated emission expanded uncertainty(30MHz-1000MHz)

$$= 3.90 \text{dB, } k=2$$

Radiated emission expanded uncertainty(Above 1GHz)

$$= 4.28 \text{dB, k=2}$$



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2. General Information

2.1. General Description of EUT

Equipment:	RC quadcopter
Model Name:	HS320
Series Models:	HS320 Mini, HS320 Plus, HS320 Pro, HS320 Pro2, HS320C, HS320G, HS320D, HS320L, HS321, HS322, HS323, HS324, HS325, HS326, HS327, HS328, HS329
Model Difference:	All model's the function, software and electric circuit are the same, only with a product named different. Test sample mode: HS320.
FCC ID:	2BCZR1865RY4
Antenna Type:	Internal antenna
Antenna Gain:	0.17dBi
Operation frequency:	2405-2475MHz
Number of Channels:	52CH
Modulation Type:	GFSK
Power Source:	DC 4.5V From Battery
Power Rating:	DC 4.5V From Battery
Note:	<ol style="list-style-type: none">1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.2. Antenna gain Refer to the antenna specifications.3. The cable loss data is obtained from the supplier.4. The test results in the report only apply to the tested sample.

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2.1.1. Carrier Frequency of Channels

Description of Channel:					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2405	19	2437	37	2458
02	2420	20	2438	38	2459
03	2421	21	2439	39	2460
04	2422	22	2440	40	2462
05	2423	23	2441	41	2463
06	2424	24	2442	42	2464
07	2425	25	2443	43	2465
08	2426	26	2444	44	2467
09	2427	27	2445	45	2468
10	2428	28	2446	46	2469
11	2429	29	2449	47	2470
12	2430	30	2450	48	2471
13	2431	31	2451	49	2472
14	2432	32	2453	50	2473
15	2433	33	2454	51	2474
16	2434	34	2455	52	2475
17	2435	35	2456		
18	2436	36	2457		

2.2. Operation of EUT During Testing

Operating Mode

The mode is used: **Transmitting mode**

Low Channel: 2405MHz

Middle Channel: 2445MHz

High Channel: 2475MHz

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2.3. Description of Test Setup

Operation of EUT during radiation testing:



Operation of EUT during RF conducted testing:



The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. The worst case is X position.



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2.4. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Trade Mark	Model/Type No.	Specification	Remark
1	RC quadcopter	N/A	HS320	N/A	EUT
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Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

3. For conducted measurements (Occupied Bandwidth), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.



2.5. Measurement Instruments List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	L.I.S.N.	R&S	ENV216	HKE-002	2025/02/19	1 Year
2	L.I.S.N.	R&S	ENV216	HKE-059	2025/02/19	1 Year
3	EMI Test Receiver	R&S	ESR	HKE-005	2025/02/19	1 Year
4	Spectrum analyzer	Agilent	N9020A	HKE-025	2025/02/19	1 Year
5	Spectrum analyzer	Agilent	N9020A	HKE-117	2025/02/19	1 Year
6	Spectrum analyzer	R&S	FSV3044	HKE-126	2025/02/19	1 Year
7	Preamplifier	EMCI	EMC051845S	HKE-006	2025/02/19	1 Year
8	Preamplifier	Schwarzbeck	BBV 9743	HKE-016	2025/02/19	1 Year
9	Preamplifier	A.H. Systems	SAS-574	HKE-182	2025/02/19	1 Year
10	6d Attenuator	Pasternack	6db	HKE-184	2025/02/19	1 Year
11	EMI Test Receiver	Rohde & Schwarz	ESR-7	HKE-010	2025/02/19	1 Year
12	Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	2024/02/21	2 Year
13	Loop Antenna	COM-POWER FMZB 1519 012 May 11, 2016	AL-130R	HKE-014	2024/02/21	2 Year
14	Horn Antenna	Schwarzbeck	9120D	HKE-013	2024/02/21	2 Year
15	EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
16	EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	/	/
17	RF Automatic control unit	Tonscend	JS0806-2	HKE-060	2025/02/19	1 Year
18	High pass filter unit	Tonscend	JS0806-F	HKE-055	2025/02/19	1 Year
19	Wireless Communication Test Set	R&S	CMU200	HKE-026	2025/02/19	1 Year
20	Wireless Communication Test Set	R&S	CMW500	HKE-027	2025/02/19	1 Year
21	High-low temperature chamber	Guangke	HT-80L	HKE-118	2025/06/09	1 Year
22	Temperature and humidity meter	Boyang	HTC-1	HKE-075	2025/06/09	1 Year
23	RF Test Software	Tonscend	JS1120-3 Version V3.5.39	HKE-083	/	/
24	10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	2025/02/19	1 Year
25	RSE Test Software	Tonscend	JS36-RSE 5.0 .0	HKE-184	/	/

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3.4. Test Result

Not applicable.

Note: EUT power supply by DC Power, so this test item not applicable.

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4. Radiated Emission Test

4.1. Radiation Limit

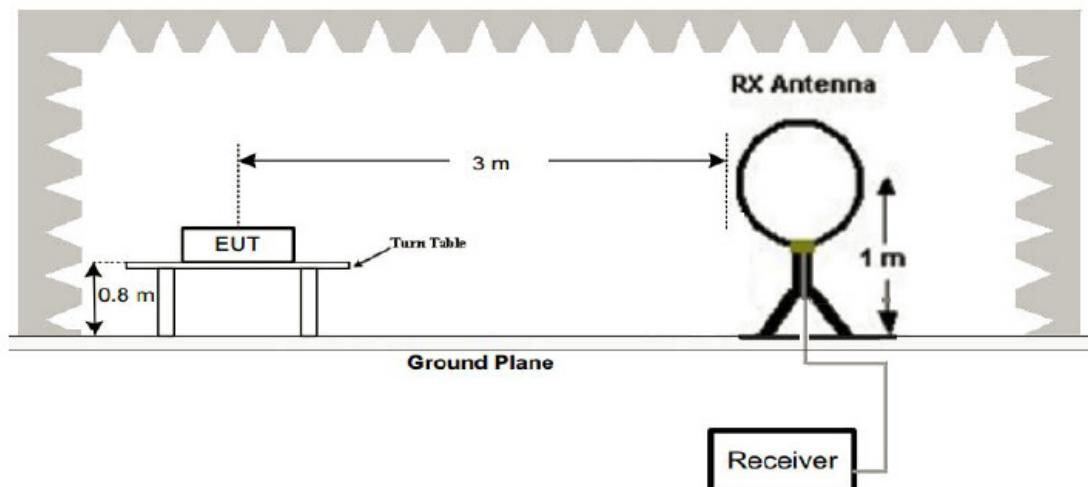
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dB μ V/m)	Radiated (μ V/m)
0.009-0.490	300	20log 2400/F (kHz)	2400/F (kHz)
0.490-1.705	30	20log 24000/F (kHz)	24000/F (kHz)
1.705-30	30	20log 30	30
30-88	3	40	100
88-216	3	43.5	150
216-960	3	46	200
Above 960	3	54	500

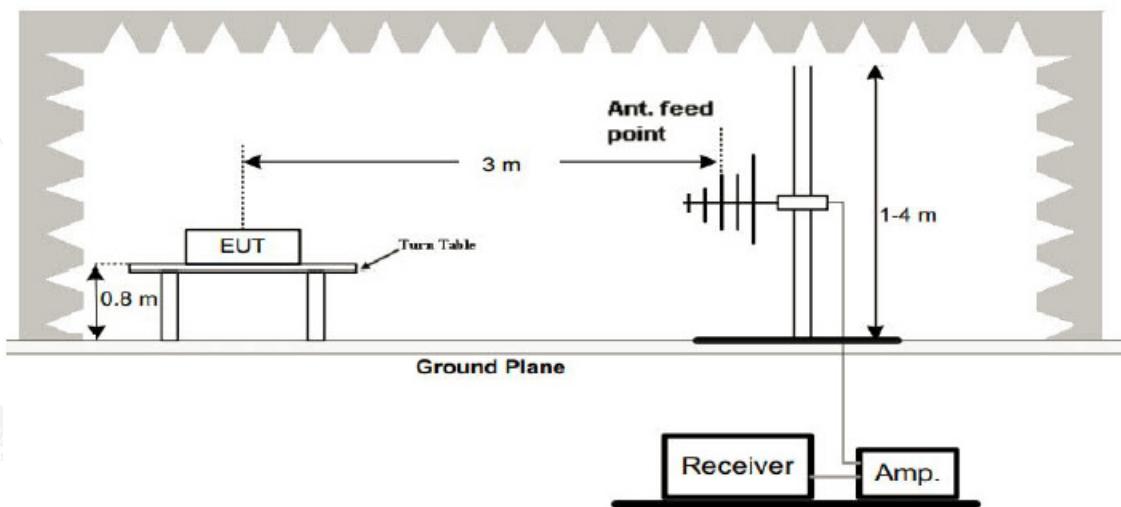
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

4.2. Test Setup

(1) Radiated Emission Test-Up Frequency Below 30MHz



(2) Radiated Emission Test-Up Frequency 30MHz~1GHz



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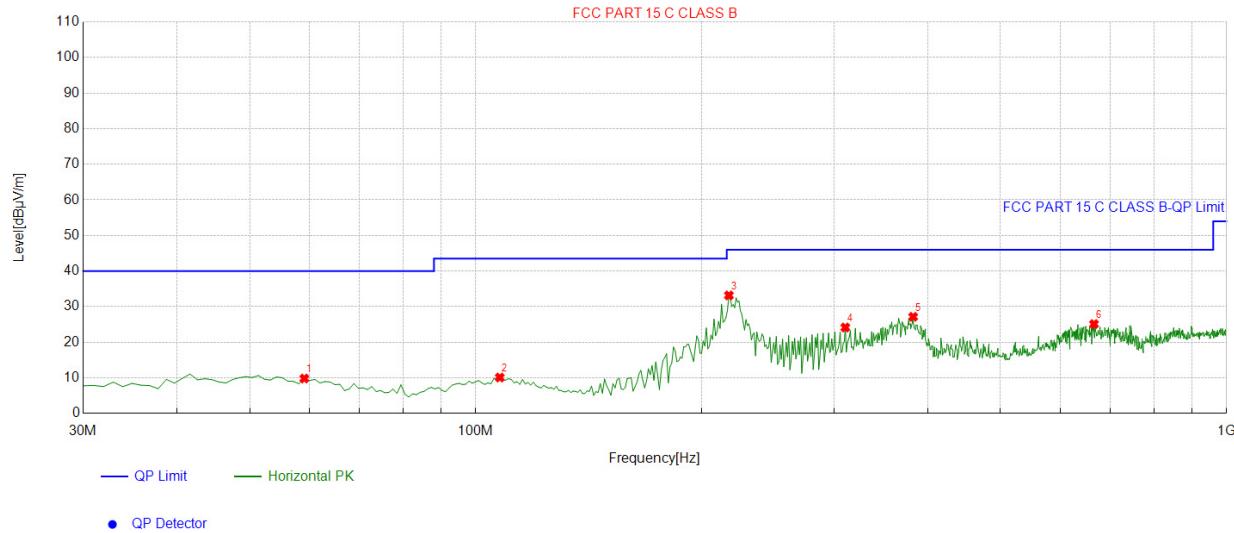
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Below 1GHz Test Results:

Antenna polarity: H



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	59.1291	-13.54	23.35	9.81	40.00	30.19	100	285	Horizontal
2	107.6777	-14.18	24.27	10.09	43.50	33.41	100	70	Horizontal
3	217.3974	-14.66	47.82	33.16	46.00	12.84	100	2	Horizontal
4	310.6106	-11.78	35.93	24.15	46.00	21.85	100	354	Horizontal
5	382.4625	-9.17	36.32	27.15	46.00	18.85	100	299	Horizontal
6	665.9860	-4.67	29.77	25.10	46.00	20.90	100	122	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

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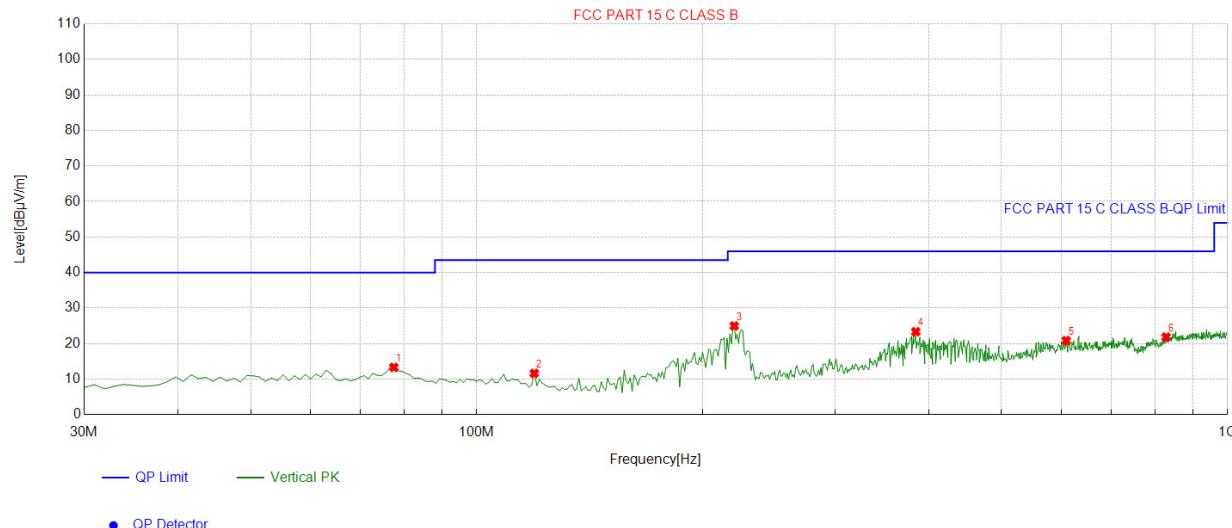
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Antenna polarity: V



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	77.5776	-18.02	31.34	13.32	40.00	26.68	100	52	Vertical
2	119.3293	-15.94	27.58	11.64	43.50	31.86	100	292	Vertical
3	220.3103	-14.54	39.52	24.98	46.00	21.02	100	113	Vertical
4	384.4044	-9.06	32.40	23.34	46.00	22.66	100	93	Vertical
5	609.6697	-5.30	26.14	20.84	46.00	25.16	100	14	Vertical
6	828.1381	-2.49	24.34	21.85	46.00	24.15	100	344	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

Harmonics and Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

Note: 1. Emission Level=Reading+ Cable loss+ Antenna factor-Amp factor.

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

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Above 1 GHz Test Results:**CH Low (2405MHz)****Horizontal:**

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2405.00	95.55	-5.84	89.71	114	24.29	peak
2405.00	81.16	-5.84	75.32	94	18.68	AVG
4810.00	51.38	-3.64	47.74	74	26.26	peak
4810.00	43.93	-3.64	40.29	54	13.71	AVG
7215.00	49.21	-0.95	48.26	74	25.74	peak
7215.00	39.18	-0.95	38.23	54	15.77	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit-Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2405.00	99.2	-5.84	93.36	114	20.64	peak
2405.00	79.81	-5.84	73.97	94	20.03	AVG
4810.00	51.58	-3.64	47.94	74	26.06	peak
4810.00	41.35	-3.64	37.71	54	16.29	AVG
7215.00	49.93	-0.95	48.98	74	25.02	peak
7215.00	38.33	-0.95	37.38	54	16.62	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit-Level.

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CH Middle (2445MHz)**Horizontal:**

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2445.00	99.06	-5.71	93.35	114	20.65	
2445.00	71.94	-5.71	66.23	94	27.77	AVG
4890.00	52.38	-3.51	48.87	74	25.13	peak
4890.00	43.63	-3.51	40.12	54	13.88	AVG
7335.00	49.15	-0.82	48.33	74	25.67	peak
7335.00	40.58	-0.82	39.76	54	14.24	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2445.00	101.77	-5.71	96.06	114	17.94	
2445.00	77.69	-5.71	71.98	94	22.02	AVG
4890.00	51.52	-3.51	48.01	74	25.99	peak
4890.00	41.04	-3.51	37.53	54	16.47	AVG
7335.00	49.06	-0.82	48.24	74	25.76	peak
7335.00	38.38	-0.82	37.56	54	16.44	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

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CH High (2475MHz)**Horizontal:**

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2475.00	100.01	-5.65	94.36	114	19.64	peak
2475.00	72.5	-5.65	66.85	94	27.15	AVG
4950.00	51.48	-3.43	48.05	74	25.95	peak
4950.00	41.28	-3.43	37.85	54	16.15	AVG
7425.00	49.19	-0.75	48.44	74	25.56	peak
7425.00	39.97	-0.75	39.22	54	14.78	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit-Level.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2475.00	101.53	-5.65	95.88	114	18.12	peak
2475.00	74.49	-5.65	68.84	94	25.16	AVG
4950.00	51.36	-3.43	47.93	74	26.07	peak
4950.00	42.60	-3.43	39.17	54	14.83	AVG
7425.00	50.05	-0.75	49.3	74	24.7	peak
7425.00	39.49	-0.75	38.74	54	15.26	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit-Level.

Remark :

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency; "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not record in the report.
- (5) The IF bandwidth of EMI Test keyboard between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54 dB μ V/m(AV Limit), the Average Detected not need to completed.
- (7) All modes of operation were investigated and the worst-case emissions are reported.

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5. Band Edge

5.1. Limits

FCC PART 15.249(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

5.2. Test Procedure

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW to 1MHz and VBM to 3MHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength.

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5.3. Test Result

PASS

Radiated Band Edge Test:

Operation Mode: TX CH Low (2405MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2310	58.25	-5.81	52.44	74	21.56	peak
2310	/	-5.81	/	54	/	AVG
2390	54.91	-5.84	49.07	74	24.93	peak
2390	/	-5.84	/	54	/	AVG
2400	51.33	-5.84	45.49	74	28.51	peak
2400	/	-5.84	/	54	/	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2310	56.74	-5.81	50.93	74	23.07	peak
2310	/	-5.81	/	54	/	AVG
2390	55.82	-5.84	49.98	74	24.02	peak
2390	/	-5.84	/	54	/	AVG
2400	51.46	-5.84	45.62	74	28.38	peak
2400	/	-5.84	/	54	/	AVG

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Operation Mode: TX CH High (2475MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	53.29	-5.65	47.64	74	26.36	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	51.84	-5.65	46.19	74	27.81	peak
2500.00	/	-5.65	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2483.50	56.27	-5.65	50.62	74	23.38	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	52.43	-5.65	46.78	74	27.22	peak
2500.00	/	-5.65	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit-Level.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Remark:

1. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.
2. In restricted bands of operation, the spurious emissions below the permissible value more than 20dB.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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6. Occupied Bandwidth Measurement

6.1. Test Setup

Same as Radiated Emission Measurement

6.2. Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
 2. Set EUT as normal operation.
 3. Based on ANSI C63.10 section 6.9.2: RBW= 39KHz. VBW=120 KHz, Span=8MHz.
 4. The useful radiated emission from the EUT was detected by the spectrum analyzer with peak detector.

6.3. Measurement Equipment Used

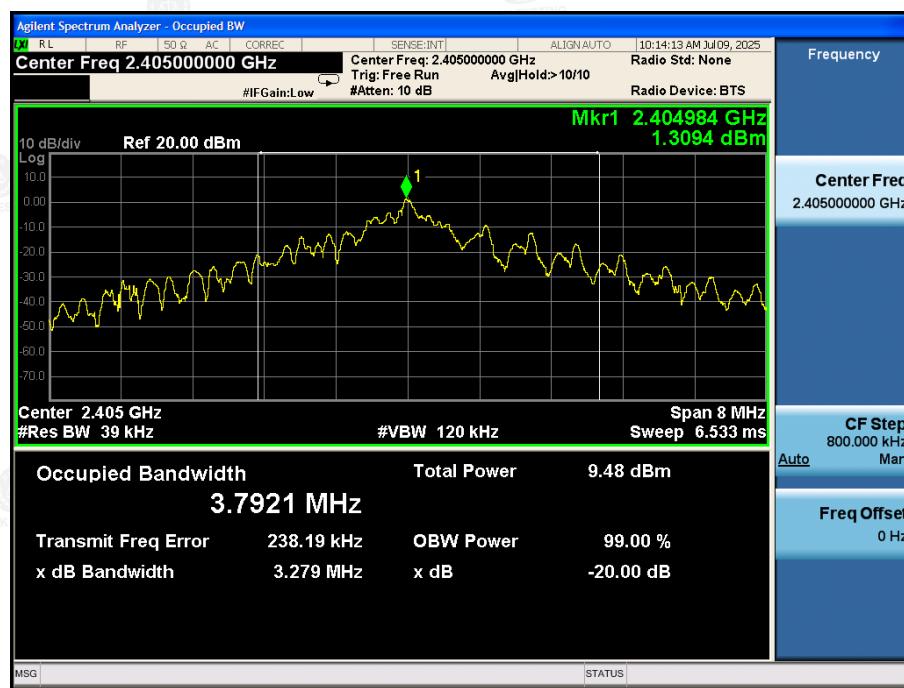
Same as Radiated Emission Measurements

6.4. Test Result

PASS

Frequency HUAK TESTING	20dB Bandwidth HUAK TESTING (MHz)	Result
2405 MHz	3.279	PASS
2445 MHz	1.140	PASS
2475 MHz	2.987	PASS

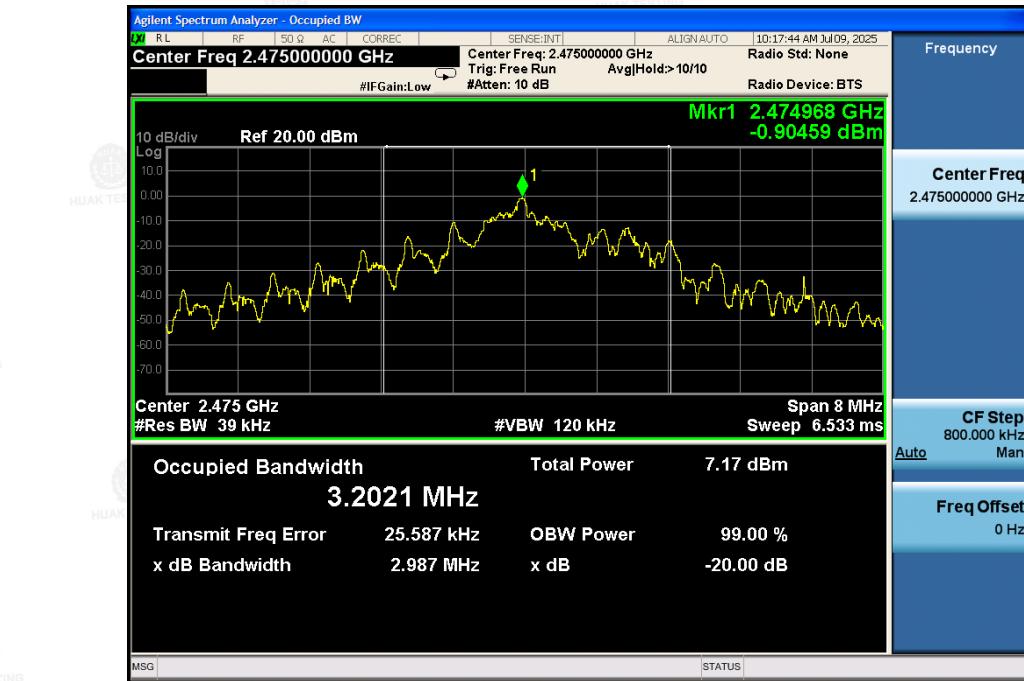
CH: 2405MHz



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CH: 2475MHz



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7. Antenna Requirement

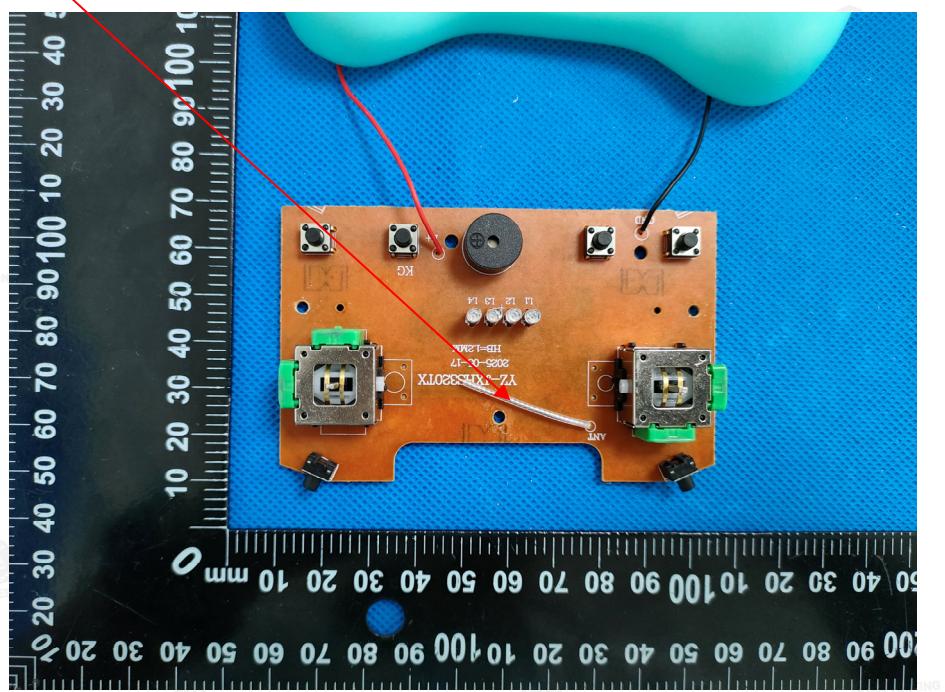
Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Connected Construction

The antenna used in this product is a Internal antenna, which permanently attached. It conforms to the standard requirements. The directional gains of antenna used for transmitting is 0.17dBi.

Antenna



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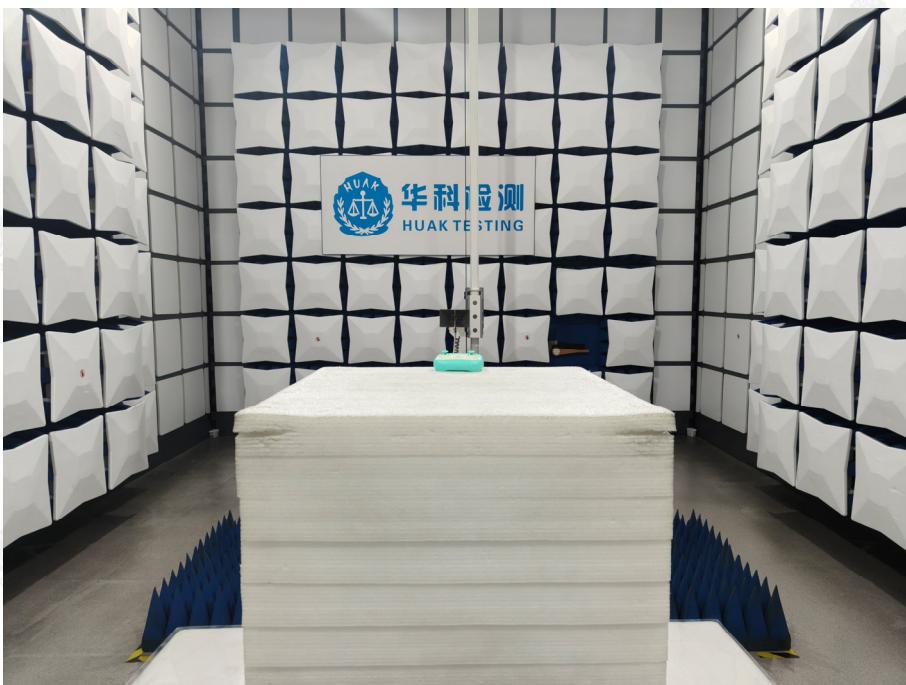
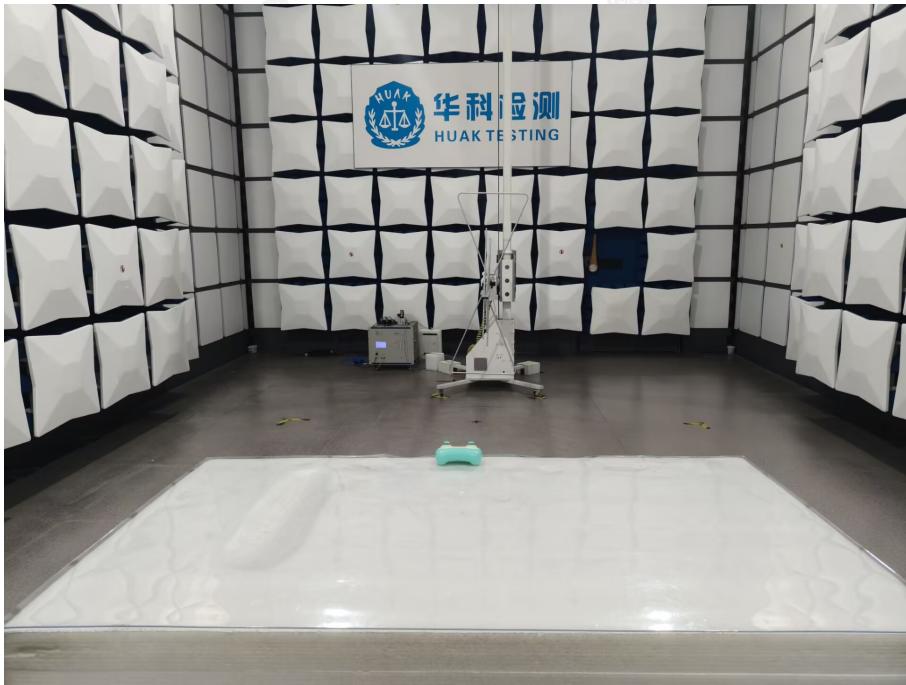


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8. Photograph of Test

Radiated Emission

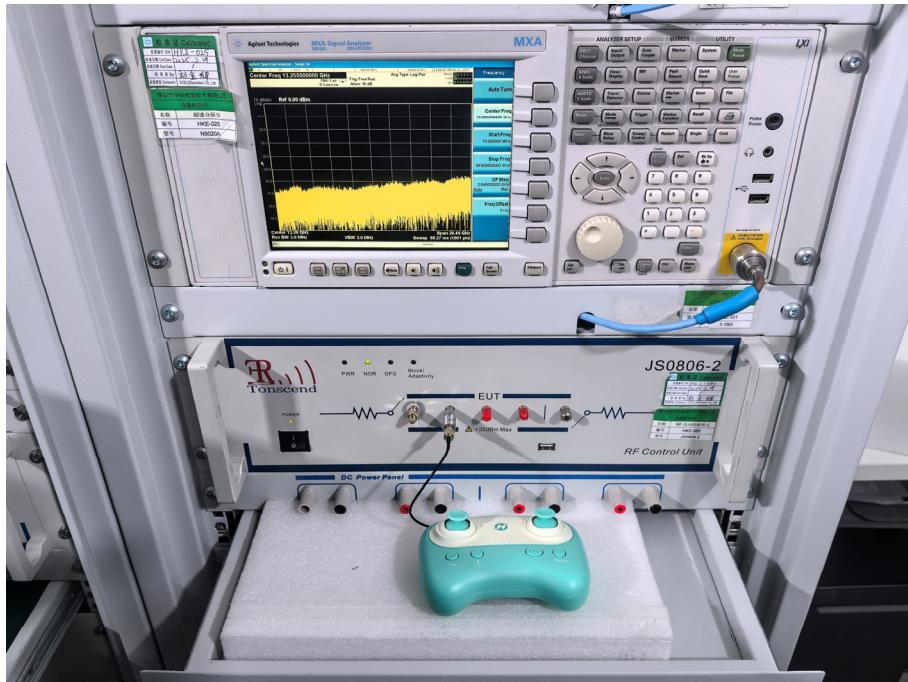




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RF Conducted Emission



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9. Photos of the EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos.

-----End of test report-----



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